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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/924,762

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Yasutaka Nishida

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02/17/2005

REED SMITH LLP

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EXAMINER

RODRIGUEZ, GLENDA P

ART UNIT

PAPER NUMBER

2651

DATE MAILED: 02/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/924,762

Applicant(s)

NISHIDA ET AL.

Examiner

Glenda P. Rodriguez

Art Unit

2651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 13, 14, 15, 17, 22-25 and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al. (US Patent No. 6, 731, 446) in view of Cheung (US Patent No. 6, 025, 970).

Regarding Claims 22 and 24, Ikeda et al. teach a disk drive wherein:

A magnetic head for recording and reproducing information (Pat. No. 6, 731, 446; Col. 1, L. 48-50), and

A perpendicular magnetic recording medium having perpendicular magnetic recording layer (Pat. No. 6, 731, 446; Col. 1, L. 50-65), and

A soft magnetic underlayer (Pat. 6, 731, 446; Col. 2, L. 63 to Col. 3, L. 9, Col. 3, L. 44-55, Col. 31, L. 38-54. Ikeda et al. teaches a soft magnetic layer placed under the recording layer used to control magnetic flux transitions when recording a pattern (i.e., DC magnetization), according the Applicants description of their "soft magnetic underlayer" as Specified in the Applicant's Specification in Page 8, L. 4-20 (the Applicant does not explicitly teach the particular and/or specific location of the magnetic underlayer, therefore the Examiner assumes that the soft

magnetic underlayer is just a soft magnetic layer located under the recording layer wherein a DC magnetization (i.e. magnetic pattern) is recorded thereto.),

Said perpendicular recording layer having a burst area (Pat. No. 6, 731, 446; Col. 47, L. 11-17. Ikeda et al. teach that the medium has servo bursts recorded therein by the magnetic head. It is obvious to a person of ordinary skill in the art to know that the signals recorded by the disk are recorded within the layers on the disk.),

Ikeda et al. fail to teach wherein the first area is a burst area and the second area is the dummy area and that the frequency of the dummy area being higher than the frequency of the burst area. However, this feature is well known in the art as disclosed by Cheung, wherein it teaches the recording of a first area and a second area (i.e. dummy area) wherein the frequency of the burst area is lower than the frequency of the second area (Pat. No. 6, 025, 970; Col. 4, L. 66 to Col. 5, L. 27. Cheung teaches two areas in the servo field being recorded at different frequencies. It is obvious to an artisan that if the frequencies are different, one frequency has to be lower and the other frequency has to be higher). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ikeda et al.'s invention in order to control the movement of the actuator (Col. 2, L. 55 – Col. 3, L. 9).

Regarding Claims 13, 15, 27 and 29, Ikeda et al. teaches a disk drive, comprising:

A magnetic head for recording and reproducing information (Pat. No. 6, 731, 446; Col. 1, L. 48-50), and

A perpendicular magnetic recording medium having perpendicular magnetic recording layer (Pat. No. 6, 731, 446; Col. 1, L. 50-65),

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A soft magnetic underlayer (Pat. 6, 731, 446; Col. 2, L. 63 to Col. 3, L. 9, Col. 3, L. 44-55, Col. 31, L. 38-54. Ikeda et al. teaches a soft magnetic layer placed under the recording layer used to control magnetic flux transitions when recording a pattern (i.e., DC magnetization), according the Applicants description of their "soft magnetic underlayer" as Specified in the Applicant's Specification in Page 8, L. 4-20 (the Applicant does not explicitly teach the particular and/or specific location of the magnetic underlayer, therefore the Examiner assumes that the soft magnetic underlayer is just a soft magnetic layer located under the recording layer wherein a DC magnetization (i.e. magnetic pattern) is recorded thereto.)),

Said perpendicular recording layer having a burst area (Pat. No. 6, 731, 446; Col. 47, L. 11-17. Ikeda et al. teach that the medium has servo bursts recorded therein by the magnetic head. It is obvious to a person of ordinary skill in the art to know that the signals recorded by the disk are recorded within the layers on the disk.),

Ikeda et al. fail to teach wherein the first area is a burst area and the second area is the dummy area and that the recording density of the dummy area being higher than the recording density of the burst area. However, this feature is well known in the art as disclosed by Cheung, wherein it teaches a first area being a burst area and a second area (i.e. dummy area) Ikeda et al. fail to teach wherein the first area is a burst area and the second area is the dummy area and that the frequency of the dummy area being higher than the frequency of the burst area. However, this feature is well known in the art as disclosed by Cheung, wherein it teaches the recording of a first area and a second area (i.e. dummy area) wherein the frequency of the burst area is lower than the frequency of the second area (Pat. No. 6, 025, 970; Col. 4, L. 66 to Col. 5, L. 27.

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Cheung teaches two areas in the servo field being recorded at different frequencies. It is obvious to an artisan that if the frequencies are different, one frequency has to be lower and the other frequency has to be higher. It is of obvious knowledge to an artisan in the art that the higher frequency will have a higher recording density (and a shorter bit length, because the higher the frequency, the more bits you want to write with a limited space) than the lower frequency.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ikeda et al.'s invention in order to control the movement of the actuator (Col. 2, L. 55 – Col. 3, L. 9).

Regarding Claims 14, 17, 23, 25, 28 and 30, Ikeda et al. and Cheung teach all the limitations of Claims 13, 15, 22, 24, 28, and 30, respectively. Cheung further teach wherein the recording medium has a response to DC magnetization (Pat. No. 6, 025, 970; Col. 4, L. 18-28. Cheung teaches that the DC signals can also be used to determine the relative location of the head with respect to the medium.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ikeda et al.'s invention in order to control the movement of the actuator (Pat. No. 6, 025, 970; Col. 2, L. 55 – Col. 3, L. 9).

Regarding Claims 18-21, Ikeda et al. and Cheung teach all the limitations of Claims 13, 14, 18 and 19, respectively. Cheung further teaches wherein the user data has a bit length greater or equal to the burst signal (Pat. No. 6, 025, 970; Col. 4, L. 18-28. Cheung teaches that the DC signals can also be used to determine the relative location of the head with respect to the medium. Therefore, the user data has greater bit length than the DC burst data due to the fact that the DC area has no bits therein.)

Claims 26 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al. and Cheung as applied to claims 24 and 29, respectively above, and further in view of Sacks (US Patent No. 6, 490, 111). Ikeda et al. and Cheung teach all the limitations of Claims 24 and 29, respectively. Ikeda et al. and Cheung fail to teach wherein a controller which extracts the burst signal from the burst area. However, this feature is well known in the art as disclosed by Sacks, wherein it teaches a controller that measures the amplitudes of the burst signals in order to refresh the burst magnetization in the disk (Pat. No. 6, 490, 111; Col. 2, L. 47-57 and Col. 5, L. 5-23). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ikeda et al. and Cheung's invention in order to refresh the burst magnetization in the disk and prevent thermal decay of the burst signal.

Response to Arguments

Applicant's arguments filed 9/17/2004 have been fully considered but they are not persuasive. Applicants amended independent Claims 13, 15, 22, 24, 27, and 29 to add the feature "a soft magnetic underlayer" to differentiate the Claimed invention with the references Ikeda et al. and Cheung. However, Examiner cannot concur with the Applicant because the Applicant does disclose a soft magnetic underlayer, but it does not disclose the particular layering of the disk. The Applicant mentions that the soft magnetic underlayer is used for DC magnetization (See Specification Page 8, L. 4-20. The Examiner proceeded to consider the "soft magnetic underlayer" as a soft magnetic layer located under the recording layer wherein a DC magnetization (i.e. magnetic pattern) is recorded thereto.). Ikeda et al. discloses a soft magnetic layer which is under the recording layer in which used to control magnetic flux transitions when

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recording a pattern (i.e., DC magnetization)(Pat. 6, 731, 446; Col. 2, L. 63 to Col. 3, L. 9, Col. 3, L. 44-55, Col. 31, L. 38-54).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenda P. Rodriguez whose telephone number is (703) 305-8411. The examiner can normally be reached on Monday thru Thursday: 7:00-5:00; alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (703) 308-4825. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


gpr
Feb 8, 2005.


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